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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,970	09/30/2003	Rakesh Agrawal	ARC920030033US1	5962
<div>7590      01/25/2007 LEONARD T. GUZMAN IBM CORPORATION, INTELLECTUAL PROPERTY LAW DEPT. C4TA/J2B 650 HARRY ROAD San Jose, CA 95120-6099</div>			<div>EXAMINER PHAM, HUNG Q</div> <div>ART UNIT      PAPER NUMBER 2168</div>	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		01/25/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/676,970

Applicant(s)

AGRAWAL ET AL.

Examiner

HUNG Q. PHAM

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 12 and 15-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 12 and 15-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

- Applicants' arguments with respect to the rejection of claim 12 have been fully considered but they are not persuasive.

As argued by applicants at page 6:

*Claims 1-11, 13, 14, and 18-20 have been cancelled. It is therefore clear that remaining claims 12 and 15-17, as amended, comply with the requirements of 35 U.S.C. § 102.*

Examiner respectfully disagrees.

Claims 13 and 14 are incorporated into claim 12 as in the Amendment filed on 10/25/06. Claims 13 and 14 were rejected under 35 U.S.C. § 102 and 103 as indicated in the previous Office Action. Therefore, the rejection of claim 12 under 35 U.S.C. § 103 will be detailed as below.

- Applicants' arguments with respect to the rejection of claims 15-17 have been considered but are moot in view of the new ground(s) of rejection.

### ***Duplicate Claims, Warning***

Applicant is advised that should claim 17 be found allowable, claim 12 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

**Claims 12 and 15-17 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.**

Claims 12 and 15-17 are directed to systems comprising software per se. Software per se is not one of the four categories of invention and therefore claims 12 and 15-17 are non-statutory. Software per se is not a series of steps or acts and thus is not a process. Software per se is not a physical article or object and as such is not a machine or manufacture. Software per se is not a combination of substances and therefore is not a composition of matter.

Claims 12 and 15-17 are directed to a system for *partitioning authors on a given topic in a newsgroup into two opposite classes of the authors*. This claimed subject matter lacks a practical application of a judicial exception (law of nature, abstract idea, naturally occurring article/phenomenon) since it fails to produce a useful and tangible result.

Specifically, the claimed subject matter does not produce a useful result because the claimed subject matter fails to sufficiently reflect at least one practical utility set forth in the descriptive portion of the specification. More specifically, while the described practical utility (utilities) is (are) directed to *partitioning authors on a given topic in a newsgroup into two opposite classes of the authors*, the claimed subject matter relates ONLY to *generating the two opposite classes of the authors*, wherein the contents of the generated class is still unknown and how to partitioning the authors is still a question.

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The claimed subject matter does not produce a tangible result because the claimed subject matter fails to produce a result that is limited to having real world value rather than a result that may be interpreted to be abstract in nature as, for example, a thought, a computation, or manipulated data. More specifically, the claimed subject matter provides for *generating the two opposite classes of the authors*. This produced result remains in the abstract and, thus, fails to achieve the required status of having real world value.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

**Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

Claim 16 recites the limitation *the second eigenvector*. There is insufficient antecedent basis for this limitation in the claim. The claimed limitation, *generating the two opposite classes of the authors* make the claim indefinite because there are four opposite classes are generated in the system.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**Claims 12 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. [Browsing Newsgroup with A Social Network Analyzer] in view of Kernighan et al. [An Efficient Heuristic Procedure for Partitioning Graphs].**

Regarding claims 12 and 17, Chang teaches a *system of partitioning authors on a given topic in a newsgroup into two opposite classes of the authors* (Abstract), the system comprising:

*an identifying module configured to identify all links among the authors, wherein each link represents a response from one of the authors to another of the authors* (Page 3 Col. 1 Lines 34-36, a link exists from author  $V_i$  to author  $V_j$  if  $V_i$  ever replies to an article posted by  $V_j$ );

*an analyzing module configured to analyze the identified links, wherein the identified links are assumed to be more likely to be antagonistic links rather than non-antagonistic links* (Page 3 Col. 2 Lines 5-12, the identified link is analyzed by calculating author's prestige degree that indicates the amount of attention s/he receives from others. In different words, *the identified links are assumed to be more likely to be antagonistic links*, e.g., the link indicates the amount of attention s/he receives from others),

*wherein the identifying module comprises*

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*a vertex assigning module configured to assign a vertex of a graph to each of the authors*

(Page 3 Col. 1 Line 30, nodes of a graph are authors) and

*an edge assigning module configured to assign an edge of the graph to each interaction*

*between two of the assigned vertices corresponding to two of the authors* (Page 3 Col. 1 Lines 34-

36, a link exists from author  $V_i$  to author  $V_j$  if  $V_i$  ever replies to an article posted by  $V_j$ ),

*a fixing module configured to fix the assigned vertices of the authors who are most prolific*

(Page 3 Col. 1 Lines 8-15),

*wherein the analyzing module comprises*

*a creating module configured to create a co-citation matrix of the graph, wherein the co-*

*citation matrix comprises the assigned vertices and the assigned edges* (Page 2 Col. 2 Lines 45-45,

the adjacent matrix is *a co-citation matrix*),

*a setting module configured to set a weighted edge with a weight of  $w$  for each set of two of the*

*assigned vertices only if the number of the authors to whom both members of the set have responded is  $w$*

(Page 3 Col. 2 Lines 6-8, setting an edge with weight  $W_i$ , where  $W_i$  is the number of

edges, e.g., responses, between two vertices, e.g., authors) and

*generating the two opposite classes of the authors* (Page 4 Col. 1 Lines 15-20,

Prestigious Authors and Authors who fail to receive any response).

The missing of Chang is *a solving module configured to solve a min-weight approximately balanced cut problem on the co-citation matrix.*

Kernighan teaches *solving a min-weight approximately balanced cut problem on the co-citation matrix*

(Kernighan, Page 295 Lines 14-29).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the method of identifying and analyzing links between authors in a newsgroup taught by Chang et al by the method of solving a min-weight approximately balanced cut problem on a matrix taught by Kernighan, because solving a min-weight problem

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on a matrix partitions the set corresponding to the matrix into two sets, such that the external cost is minimized (Kernighan, Page 295 Lines 14-19).

**Claims 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. [Browsing Newsgroup with A Social Network Analyzer] in view of Goemans et al [Approximation Algorithms for MAX CUT and MAX 2SAT].**

Regarding claim 15, Chang teaches *a system for partitioning authors on a given topic in a newsgroup into two opposite classes of the authors* (Abstract), the system comprising:

*an identifying module configured to identify all links among the authors, wherein each link represents a response from one of the authors to another of the authors* (Page 3 Col. 1 Lines 34-36, a link exists from author  $V_i$  to author  $V_j$  if  $V_i$  ever replies to an article posted by  $V_j$ ); and

*an analyzing module configured to analyze the identified links, wherein the identified links are assumed to be more likely to be antagonistic links rather than non-antagonistic links* (Page 3 Col. 2 Lines 5-12, the identified link is analyzed by calculating author's prestige degree that indicates the amount of attention s/he receives from others. In different words, *the identified links are assumed to be more likely to be antagonistic links*, e.g., the link indicates the amount of attention s/he receives from others),

wherein the identifying module comprises

*a vertex assigning module configured to assign a vertex of a graph to each of the authors* (Page 3 Col. 1 Line 30, nodes of a graph are authors) and

*an edge assigning module configured to assign an edge of the graph to each interaction between two of the assigned vertices corresponding to two of the authors* (Page 3 Col. 1 Lines 34-36, a link exists from author  $V_i$  to author  $V_j$  if  $V_i$  ever replies to an article posted by  $V_j$ ), and



*wherein the graph comprises the assigned vertices and the assigned edges (FIG. 1), thereby generating the two opposite classes of the authors* (Page 4 Col. 1 Lines 15-20, Prestigious Authors and Authors who fail to receive any response).

The missing of Chang is *a solving module configured to solve a max cut problem on the graph*.

Goemans teaches solving a max cut problem on the graph (Goemans, Page 422 Col. 2 Lines 2-7).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the method of identifying and analyzing links between authors in a newsgroup taught by Chang by the method of solving a max cut problem taught by Goemans, because solving a max cut problem on a graph separates the vertices of the graph into two opposite classes, while maximizing the sum of the weights of edges crossing between the two classes (Goemans, Page 422 Col. 2 Lines 2-7).

**Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al. [Browsing Newsgroup with A Social Network Analyzer], Kernighan et al. [An Efficient Heuristic Procedure for Partitioning Graphs] and further in view of Spielman et al. [Spectral Partitioning Works: Planar Graphs and Finite Element Meshes].**

Regarding claim 16, Chang and Kernighan, in combination, teach all of the claimed subject matter as discussed above with respect to claim 12, but does not teach the step of calculating the second eigenvector of the co-citation matrix, thereby generating the two opposite classes of the authors.

Spielman teaches calculating the second eigenvector of the co-citation matrix, thereby generating the two opposite classes of the authors (Spielman, Page 2 Col. 1 Lines 6-10).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the method of identifying and analyzing links between authors in a newsgroup taught by Chang and Kernighan by the step of calculating the second eigenvector of the co-citation matrix taught by Spielman, because partitioning by calculating the second eigenvector of the co-citation matrix is a successful heuristic for partitioning graphs and matrices (Spielman, Page 1 Col. 1 Lines 2-3).


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**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HUNG Q. PHAM whose telephone number is 571-272-4040. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, TIM T. VO can be reached on 571-272-3642. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
HUNG Q PHAM  
Examiner  
Art Unit 2168

January 9, 2007